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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/762,482	01/23/2004	Huey-Ru Chang	SUND 188 D1	4932

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EXAMINER

NORRIS, JEREMY C

ART UNIT	PAPER NUMBER
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2841

DATE MAILED: 03/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/762,482

Applicant(s)

CHANG ET AL.

Examiner

Jeremy C. Norris

Art Unit

2841

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 25-30 and 47-50 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 25-30 and 47-50 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☒ Certified copies of the priority documents have been received in Application No. 09/809,310.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1-23-04.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Priority

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 09/809,310, filed on 16 March 2001.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 25-26 and 47-49 are rejected under 35 U.S.C. 102(b) as being anticipated by US 5,689,091 (Hamzehdoost).

Hamzehdoost discloses, a method of manufacturing a coaxial via hole, comprising; (a) forming a first hole (16) in a carrier (14) (b) making the interior of the first hole conduct electricity to form an outer cylinder-shaped conductor (20) (c) placing an insulating material (22) in the outer cylinder-shaped conductor to form an insulating fill; (d) forming a second hole (26a) in the insulating fill, wherein the second hole has a diameter smaller than the diameter of the first hole; and (e) making the interior of the

Art Unit: 2841

second hole conduct electricity to form an inner cylinder-shaped conductor (30) [**claim 25**], wherein in said step (b), making the interior of the first hole conduct electricity to form an outer cylinder-shaped conductor by plating (see col. 3, lines 30-40) [**claim 26**], wherein in said step (e), making the interior of the second hole conduct electricity to form an inner cylinder-shaped conductor by plating (see col. 3, lines 40-50) [**claim 27**].

Similarly, Hamzehdoost discloses a method of manufacturing a coaxial via hole, comprising: (a) forming a first hole (16) in a carrier (14); (b) making the interior of the first hole become conduct electricity to form an outer cylinder-shaped conductor (20) (c) placing an electrical-resistant material (22) in the outer cylinder-shaped conductor to form an electrical-resistant fill; (d) forming a second hole (26a) in the electrical-resistant region, wherein the second hole has a diameter smaller than the diameter of the first hole; and (e) making the interior of the second hole become conduct electricity to form an inner cylinder-shaped conductor (30) [**claim 47**], wherein in said step (b), making the interior of the first hole become conduct electricity to form an outer cylinder-shaped conductor by plating (see col. 3, lines 30-40) [**claim 48**], wherein in said step (e), making the interior of the second hole become conduct electricity to form an inner cylinder-shaped conductor by plating (see col. 3, lines 40-50) [**claim 49**].

Claims 25-27, 29, 30, and 47-49 are rejected under 35 U.S.C. 102(e) as being anticipated by US 5,949,030 (Fasano).

Fasano discloses, referring to figures 1A-1F, a method of manufacturing a coaxial via hole, comprising; (a) forming a first hole (12) in a carrier (10) (b) making the

Art Unit: 2841

interior of the first hole conduct electricity to form an outer cylinder-shaped conductor (18) (c) placing an insulating material (20) in the outer cylinder-shaped conductor to form an insulating fill; (d) forming a second hole (25) in the insulating fill, wherein the second hole has a diameter smaller than the diameter of the first hole; and (e) making the interior of the second hole conduct electricity to form an inner cylinder-shaped conductor (26) [**claim 25**], wherein in said step (b), making the interior of the first hole conduct electricity to form an outer cylinder-shaped conductor by plating (see col. 3, lines 60-65) [**claim 26**], wherein in said step (e), making the interior of the second hole conduct electricity to form an inner cylinder-shaped conductor by plating (see col. 3, lines 60-65) [**claim 27**], wherein in said step (c), the insulating material is filled in the outer cylinder- shaped conductor by plugging (see col. 4, lines 1-15) [**claim 29**], wherein in said step (c), the insulating material is filled in the outer cylinder- shaped conductor by laminating (see col. 4, lines 1-15) [**claim 30**].

Similarly, Fasano discloses, referring to figures 1A-1F, a method of manufacturing a coaxial via hole, comprising: (a) forming a first hole (12) in a carrier (10); (b) making the interior of the first hole become conduct electricity to form an outer cylinder-shaped conductor (18) (c) placing an electrical-resistant material (20) in the outer cylinder-shaped conductor to form an electrical-resistant fill; (d) forming a second hole (25) in the electrical-resistant region, wherein the second hole has a diameter smaller than the diameter of the first hole; and (e) making the interior of the second hole become conduct electricity to form an inner cylinder-shaped conductor (26) [**claim 47**], wherein in said step (b), making the interior of the first hole become conduct electricity

Art Unit: 2841

to form an outer cylinder-shaped conductor by plating (see col. 3, lines 60-65) [claim 48], wherein in said step (e), making the interior of the second hole become conduct electricity to form an inner cylinder-shaped conductor by plating (see col. 3, lines 60-65) [claim 49].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

Art Unit: 2841

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 28 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamzehdoost in view of US 5,487,218 (Bhatt).

Hamzehdoost discloses the claimed invention as described above except Hamzehdoost does not specifically state making the interior of the second hole become conduct electricity to form an inner cylinder-shaped conductor by placing conductive paste [claims 28, 50]. However, Bhatt teaches filling an electrically conductive paste into a plated through hole in a printed circuit (see col. 3, lines 40-55). Therefore, it would have been obvious, to one having ordinary skill in the art, at the time of invention, to fill the second through holes in the invention of Hamzehdoost with the conductive paste taught by Bhatt. The motivation for doing so would have been to closely match the thermal expansion of the board and thus reduce thermal stresses.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 6,479,764 discloses a circuit board having a coaxial via.

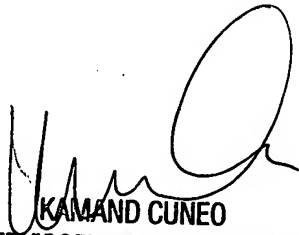
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy C. Norris whose telephone number is 571-272-1932. The examiner can normally be reached on Monday - Friday, 9:30 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on 571-272-1957. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2841

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JCSN



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